International Journal of Management, Economics and Commerce
International, Peer Reviewed journal
E-ISSN: **2584-2609**

DRIVING SUSTAINABLE PERFORMANCE THROUGH GREEN HRM: THE MEDIATING ROLE OF LEADERSHIP AND ORGANIZATIONAL CULTURE

Komal Trivedi, Jignesh Bhatt

Research Scholar
Department of Commerce and Business Management, Faculty of Commerce,
The Maharaja Sayajirao University of Baroda, Vadodara.
Komal_trivedi2005@yahoo.com

Department of Commerce and Business Management
Faculty of Commerce
The Maharaja Sayajirao University of Baroda
jignesh.bhatt-cbm@msubaroda.ac.in

Abstract

This study examines how Green Human Resource Management (GHRM) influences employee performance (EP) through the mediating roles of green leadership (GL) and green organizational culture (GOC). Using data from 157 employees in ISO 14001-certified firms, the measurement and structural models were tested through CFA and SEM. Results reveal that GHRM positively affects EP, with GOC and GL serving as significant mediators. GOC nurtures shared sustainability-oriented values that promote eco-friendly behaviours, while GL motivates employees by modeling environmental responsibility and fostering green innovation. These mediating mechanisms ensure that GHRM practices effectively translate into measurable performance outcomes. The study enriches sustainable HRM literature by validating cultural and leadership pathways linking GHRM to performance. Practically, it suggests that firms should integrate green HR practices with leadership development and culture-building initiatives. Limitations include the cross-sectional design, ISO-certified sample, and focus on limited mediators, warranting future longitudinal and cross-sector research.

Keywords: *Green HRM, Employee Performance, Sustainable HRM, Green Employee Involvement, Performance appraisal, Employee Engagement*

1. INTRODUCTION

Human activities continue to accelerate the degradation of the environment and the depletion of natural resources, creating mounting pressure on governments, corporations, non-governmental organizations, and society to adopt responsible practices. Within the corporate sector, GHRM emerged as a strategic method that incorporates sustainability into core HR operations, including hiring, training, and performance appraisal, and compensation. This approach aims to minimize environmental harm while enhancing organizational and employee outcomes (Abbas & Sau gsan, 2019; Aykan, 2017). Employees remain central to this transition, as their behaviours and performance directly shape environmental results at the organizational level (Unay-Gailhard & Bojnec, 2019). Employee performance (EP) is a critical determinant of organizational competitiveness, growth, and profitability (Kim et al., 2019). Well-structured HR practices not only foster motivation, retention, and skill development but also encourage sustainable behaviour that improves both ecological and financial outcomes. Empirical evidence indicates that GHRM contributes to productivity gains, cost reductions, and reduced carbon emissions (Osolase, 2022; Shafaei et al., 2020). These organizational efforts align with shifting consumer preferences, with more than 80% of customers favouring companies committed to eco-friendly practices (Shah, 2019). Thus, contemporary organizational performance must be assessed beyond financial metrics to include employee development, retention, and sustainable workplace practices.

The "green" dimension underscores the integration of environmental sustainability into business operations, while HRM focuses on managing talent, competencies, and motivation (Bin Amin & Rabiul Basher Rubel, 2020; Dumont et al., 2017). Together, these perspectives form GHRM, concept that has gained international traction since the mid-2000s, particularly across Europe and Asia (Consoli et al., 2016). However, successful implementation requires the congruence of organizational environmental strategies with employee attitudes and actions Dumont et al., (2017). Confirmed that firms recruiting sustainability-oriented employees reported higher levels of productivity. Over time, GHRM has evolved into an interdisciplinary field intersecting with environmental management, sustainable development, and knowledge management (Bin Amin & Rabiul Basher Rubel, 2020; Gawusu et al., 2022; Moraes et al., 2019; Nassar & Tvaronavičien.e, 2021). Prior research highlights that employee competencies,

commitment, and empowerment enhance accountability, efficiency, and alignment with organizational sustainability objectives (Paranagama, 2019; Vidija et al., 2016). Wehrmeyer, (2017) emphasized that the success of sustainability strategies ultimately depends on employee behaviour, while Lengnick-Hall et al., (2011) argued for embedding environmental considerations across all HR processes.

However, there is rarely a clear correlation between GHRM and worker performance; it is frequently moderated by corporate culture and leadership dynamics. A supportive green organizational culture defined as shared values and norms that prioritize sustainability (Lo et al., 2012), and green leadership, which inspires and models environmentally responsible practices (Robertson & Barling, 2013), serve as critical mediating mechanisms. These factors enable HR policies to be effectively translated into enhanced employee performance.

The study identifies green corporate culture and green leadership as essential mediators in the relationship between Green HRM and employee performance. This study extends prior work by simultaneously testing both mediators in one integrated framework By investigating these mechanisms, In addition to offering useful insights for businesses looking to match their human resource strategy with environmental sustainability objectives, the study aims to further the theoretical understanding of sustainable HRM

2. LITERATURE REVIEW

2.1 Traditional HRM and the Emergence of GHRM

Human resources have long been regarded as the cornerstone of organizational performance, working alongside machinery, finance, and markets to achieve efficiency and competitiveness. Planning, job analysis, hiring, training, remuneration, appraisal, and employee relations are examples of traditional HRM tasks that support organizational development. With growing environmental concerns, sustainability has been integrated into HRM, giving rise to GHRM. GHRM extends conventional HRM practices to include environmentally sustainable objectives and strategies, aligning the workforce with corporate ecological goals (Shafaei et al., 2020). By entrenching environmental considerations into HR policies, organizations minimize ecological impacts while enhancing employee motivation and competitiveness (Jackson et al., 2011; Renwick et al., 2013).

2.2 Green HRM Practices

GHRM includes several different eco-friendly methods. Green work design encourages eco-friendly behaviours by integrating environmental obligations into job duties and performance requirements. (Renwick et al., 2013). Green hiring and selection use sustainable workplace branding and paperless procedures to draw in applicants that share environmental principles (D. D. T. Pham & Paillé, 2019; Tang et al., 2018). Green training and development initiatives give staff members the abilities and information they need to cut waste, boost productivity, and encourage creativity (Pinzone et al., 2016).

Sustainability is incorporated into performance reviews and incentives by assessing and rewarding environmentally friendly efforts (Renwick et al., 2016; Shahzad et al., 2023). Compensation and benefits may include financial and non-financial rewards, such as bonuses, recognition, green transport facilities, or eco-lifestyle support (Jackson et al., 2011). In addition, employee involvement in sustainability initiatives, eco-focused workplace design, and green health and safety programs further enhance organizational performance while reducing environmental impact (Ahmad, 2015; Shah, 2019).

2.3 GHRM and Employee Performance

Employee performance and GHRM have a well-established relationship. Green HR techniques increase worker dedication, contentment, and output (D. D. T. Pham & Paillé, 2019). Kim et al., (2019) emphasized that employee performance is central to competitiveness, and ecological HR practices enhance psychological competencies for sustainable outcomes. Empirical evidence confirms that GHRM positively influences knowledge, efficiency, and retention while reducing turnover and improving organizational performance (Chowdhury et al., 2023; Luu, 2018; El-Kassar & Singh, 2019). Despite this evidence, most studies emphasize the clear connection between GHRM and performance, while ignoring the ways in which HR procedures foster green leadership and corporate culture, which eventually contribute to better results.

Mediating Role of Green Culture and Leadership

Green leadership and green organizational culture are two particularly important mechanisms. Shared norms and values that direct behaviour are embodied in organizational culture (Schein, 2010). Employee adoption of eco-friendly activities is encouraged by a green culture, which cultivates values focused on sustainability (Lo et al., 2012). Research confirms that such orientations enhance eco-citizenship behaviours, creativity, and performance outcomes (N. T. Pham et al., 2019). Similarly, leadership is vital in operationalizing GHRM. Green leaders model environmentally responsible behaviour, inspire employees, and provide guidance for sustainable performance (Chen & Chang, 2013; Robertson & Barling, 2013). Evidence shows that green leadership enhances motivation and creativity, serving as a catalyst between sustainability policies and employee performance (Mittal & Dhar, 2016).

Although both green culture and green leadership have been individually linked to sustainability outcomes, few studies have examined their **mediating roles** between the GHRM and employee performance. The literature largely assumes direct effects, neglecting the possibility that HR practices succeed only when reinforced by culture and leadership. To date, no empirical research has simultaneously tested both mediators. The present study proposes a framework to bridge the gap that integrates green culture and leadership as mediating mechanisms, thereby advancing theory and practice.

3. CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The current study creates a proposed conceptual model based on the examined literature, according to which green leadership and organizational culture are two ways that green GHRM affects worker performance. Employer attitudes and behaviours are influenced by GHRM practices, which include hiring, training, evaluation, rewards, health and safety, labour relations, and green initiatives (Renwick et al., 2013; Shafaei et al., 2020). Like, green recruitment and selection emphasize attracting candidates with pro-environmental values, thereby reinforcing a sustainability-oriented culture and creating pathways for future green leadership (Tang et al., 2018). Green training and development further strengthen this orientation by cultivating shared environmental values and preparing leaders to inspire employees toward sustainable performance (Pinzone et al., 2016). Similarly, green performance appraisals and reward systems integrate sustainability into evaluation criteria and incentive structures, ensuring that eco-friendly contributions are formally recognized and encouraged (Renwick et al., 2016; Shahzad et al., 2023). Workplace-focused practices such as green health and safety programs and employee involvement initiatives embed sustainability within daily routines, while green initiatives like recycling, energy-saving campaigns, and eco-innovation projects provide direct opportunities for employees to contribute to organizational sustainability (Ahmad, 2015; Shah, 2019). Collectively, these practices are anticipated to improve employee performance by improving productivity, reducing environmental footprints, and fostering innovation in green practices (Kim et al., 2019; D. D. T. Pham & Paillé, 2019).

Based on this paradigm, the study postulates that enhanced employee performance and GHRM practices are mediated by corporate culture and green leadership. Specifically, green organizational culture is expected to translate eco-focused HR practices into shared values and behaviours that support sustainable outcomes, while green leadership operationalizes these practices by modeling environmentally responsible behaviours and motivating employees *(see **Figure 1**).* The relationship between GRHM practices and employee performance is mediated by green leadership and green culture, as explained by the conceptual model, which also highlights the impact of GRHM practices on employee performance

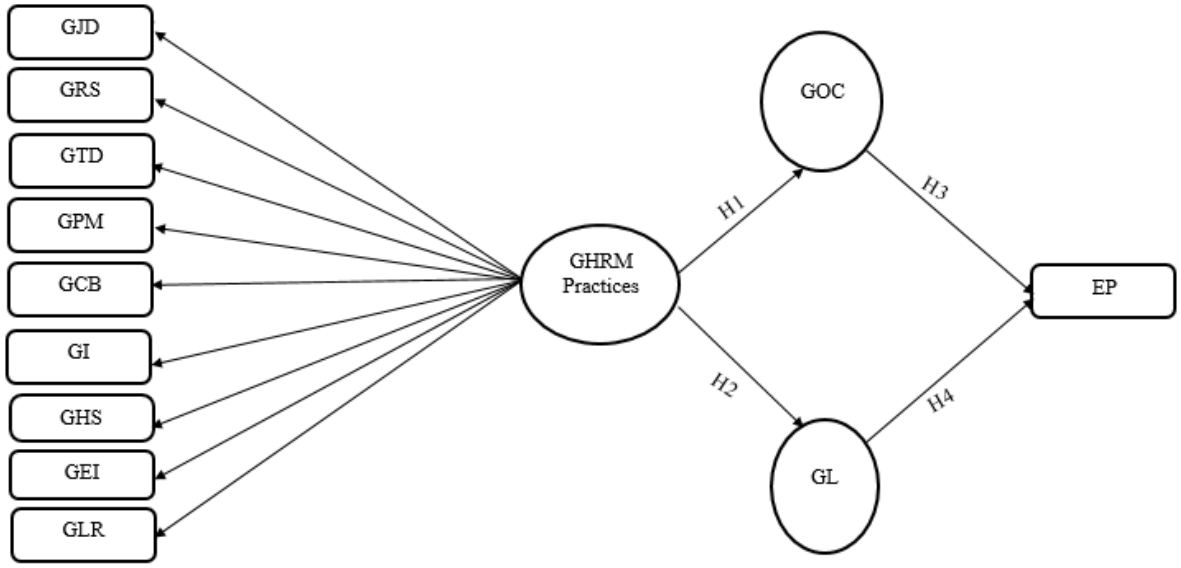

Figure 1 *Proposed Model*
(Source: Authors' conceptualization based on literature review)

3.1 Formulation of Hypothesis

The study makes the hypothesis that Green Human Resource Management (GHRM) practices favourably contribute to the development of green organizational culture (Al-Swidi et al., 2021), based on the examined literature and the suggested conceptual model (Figure 1). Furthermore, the model posits that GOC mediates this relationship by translating eco-focused HR practices into shared values and behaviours that promote sustainable performance outcomes (Tang et al., 2018). Likewise, green leadership (GL) is expected to serve as a mediator, operationalizing GHRM practices by modeling pro-environmental behaviours and inspiring employees toward eco-innovation and productivity (Pinzone et al., 2016; Renwick et al., 2016; Shahzad et al., 2023). Aiming to address this intersections, following hypothesis were formulated.

H1: GHRM practices have a positive and significant effect on the formation of a green organizational culture.
H2: GHRM practices have a positive and significant effect on the formation of a green Leadership
H3: Green organizational culture acts as a mediator between GHRM practices and employee performance.
H4: Green leadership acts as a mediator between GHRM practices and employee performance.

4. METHODOLOGY

This study examined the effects of GHRM practices on employee's performance using a quantitative research design with green leadership and company culture as mediating variables. The research was conducted among employees of **ISO 14001 certified companies located in western India**. ISO 14001 certified companies were because of their formal commitment to environmental management systems (Daily & Huang, 2001). The questionnaire was presented to the employees with prior approval of the management of the company. All employees were informed about the purpose of the research and participation was voluntary and anonymous.

A structured questionnaire was used to gather 157 valid responses using purposive sampling technique. The instrument was adapted from established scales to measure GHRM (Renwick et al., 2013; Shafaei et al., 2020; Shah, 2019). **Five-point Likert scale were used to measure all items**. A confirmatory factor analysis (CFA) was performed to assess construct validity and reliability (DiStefano et al., 2009). Subsequently, SEM (Structural Equation Modeling) was employed to test the hypothesized relationships between GRHM and EP. SEM was chosen for its ability to simultaneously test complex relationships among latent constructs while accounting for measurement errors (Kline, 2016).

5. RESULTS

5.1 Respondent's Demographic profile

The demographic characteristics *(see Table 1)* of the 157 respondents. The sample is predominantly male (68.79%), with females comprising 31.21%. Most respondents are in the 31–35 (24.8%), 36–40 (21.0%), and 26–30 (19.1%) age groups, reflecting an early to mid-career workforce. In terms of education, 54.1% are graduates and 45.9% postgraduates, indicating a well-qualified sample. A large majority are employed in private limited companies (82.8%), while only 17.2% work in public limited firms, highlighting strong private sector representation. Work experience is widely distributed, with the largest shares in the 11–15 years (23.6%), 16–20 years (21.0%), and 0–5 years (20.4%) categories, alongside smaller groups with 6–10 years (19.1%) and over 21 years (15.9%). Overall, the profile reflects a male-dominated, private sector–oriented, and well-educated respondent base spanning diverse professional experience.

5.2 Descriptive Statistics

Descriptive statistics and correlation analysis for the study variables are presented in *(Table 2)*. Among the 157 respondents, mean scores ranged from 3.74 GJD to 3.96 GHS, with standard deviations between 0.535 and 0.622, showing levels that are moderate to high for every construct. All variables had substantial positive connections, according to Pearson's correlation coefficients ($p < .01$), suggesting strong interconnections within GHRM practices. Constructs like, GJD was positively associated with GRS ($r = .317$), GTD ($r = .461$), GPM ($r = .369$), GCB ($r = .355$), GI ($r = .555$), GHS ($r = .349$), EI ($r = .472$), GLR ($r = .412$), GOC ($r = .487$), and GL ($r = .513$). Similar moderate to strong correlations were observed across other constructs, supporting the conceptual premise that integrated green HRM practices mutually reinforce one another (Renwick et al., 2013). These findings establish the internal consistency of the constructs and provide a robust foundation for subsequent structural equation modeling.

5.3 Measurement model assessment

The validity and reliability of the study constructs were evaluated using a CFA prior to testing the structural model. The findings show that every construct has acceptable psychometric qualities. Strong internal consistency was indicated by Cronbach's alpha (α) values ranging from 0.763 to 0.929 and composite reliability (CR) values ranging from 0.762 to 0.929, both of which exceeded the suggested criterion of 0.70 *(see table 3)*, strong internal consistency is indicated (Hair, 2009). Individual item factor loadings ranged from 0.602 to 0.772, indicating item reliability that was acceptable to strong. The values of Average Variance Extracted (AVE) varied between 0.414 and 0.502. Despite having AVEs that were somewhat below the suggested 0.50 criterion, certain constructs like GJD, GRS, and GTD, have high CR values, which indicates sufficient convergent validity (Fornell & Larcker, 1981). Notably, robust convergent validity was confirmed by GPM (AVE = 0.501) and GEI (AVE = 0.502) beyond the criterion. The measuring model's convergent validity and reliability are generally supported by the CFA results, which also show that the constructs are operationalized correctly and appropriate for additional structural analysis.

Table 1. Demographic information of the respondents

Indicator	Category	Frequency	%
Gender	Male	108	68.79
	Female	49	31.21
	Total	157	100.0
Age	20-25	27	17.2
	26-30	30	19.1
	31-35	39	24.8
	36-40	33	21.0

	41-45	23	14.6
	46 & Above	5	3.2
	Total	157	100.0
Education	Graduate	85	54.1
	Post Graduate	72	45.9
	Total	157	100.0
Type of Company	Public Limited	27	17.2
	Private Limited	130	82.8
	Total	157	100.0
Experience	0-5	32	20.4
	6-10	30	19.1
	11-15	37	23.6
	16-20	33	21.0
	21 & Above	25	15.9
	Total	157	100.0

Source: Author's own compilation from SPSS output

Table 2. Descriptive Statistics and correlation

Variables	Mean	SD	1 GJD	2 GRS	3 GTD	4 GPM	5 GCB	6 GI	7 GHS	8 EI	9 GLR	10 GOC	11 GL
1. GJD	3.74	.590	1	.317**	.461**	.369**	.355**	.555**	.349**	.472**	.412**	.487**	.513**
2. GRS	3.82	.572		1	.567**	.488**	.569**	.400**	.330**	.385**	.412**	.339**	.350**
3. GTD	3.78	.592			1	.521**	.586**	.471**	.374**	.521**	.567**	.470**	.505**
4. GPM	3.79	.599				1	.657**	.544**	.370**	.515**	.488**	.326**	.451**
5. GCB	3.82	.572					1	.501**	.414**	.507**	.569**	.432**	.494**
6. GI	3.89	.554						1	.454**	.539**	.481**	.518**	.554**
7. GHS	3.96	.535							1	.555**	.497**	.494**	.431**
8. EI	3.92	.549								1	.630**	.562**	.641**
9. GLR	3.82	.572									1	.544**	.530**
10.GOC	3.83	.601										1	.543**
11.GL	3.76	.622											1

Source: Authors' own calculation based on SPSS output.

Table 3. Summary of Factor Loadings, Dimensions, and Internal Consistency

Items Code	Item description	Factor Loading of items (Standardize)	Label	α	CR	AVE
GJD1	Environmental duties are part of every job	0.682	GJD	0.848	0.850	0.447
GJD2	Job descriptions include green and social goals.	0.774				
GJD3	Teamwork is encouraged to meet environmental targets	0.733				
GJD4	Job tasks include environmental responsibilities.	0.626				
GJD5	Green skills are required for all job roles.	0.615				
GJD6	The company creates roles focused on sustainability.	0.633				
GRS1	Green criteria are used in candidate shortlisting.	0.648	GRS	0.913	0.914	0.414
GRS2	Job specs include environmental requirements	0.659				
GRS4	Hiring is mostly paperless to reduce waste.	0.641				
GRS5	The company promotes itself as a green employer.	0.648				
GRS6	Green awareness is key in selection decisions.	0.751				
GRS7	New hires learn about sustainability programs	0.610				
GRS8	Employees are encouraged to act eco-friendly.	0.663				
GRS9	Preference is given to eco-conscious applicants.	0.606				
GRS10	Selection process uses paperless methods.	0.673				
GRS11	Preference for candidates who care about the environment	0.604				

GRS12	Green criteria are part of candidate assessments.	0.672				
GRS14	Job-specific green orientations are conducted.	0.647				
GRS15	Orientation covers employee roles in environmental action.	0.668				
GTD1	Company runs programs to teach environmental protection.	0.603	GTD	0.927	0.927	0.429
GTD2	Training focuses on green skills and management.	0.617				
GTD3	Green training needs are identified for employees.	0.651				
GTD4	Company checks which green topics need training.	0.667				
GTD5	Employees' need for environmental training is assessed.	0.674				
GTD6	Key environmental topics are prioritized in training.	0.693				
GTD7	Management supports applying green skills after training	0.689				
GTD8	Training connects employees emotionally with sustainability.	0.708				
GTD9	Green training improves knowledge and employee growth	0.694				
GTD10	Knowledge sharing promotes environmental learning.	0.672				
GTD11	Green training is linked with performance goals.	0.649				
GTD12	Training strengthens employees' environmental abilities.	0.697				
GTD13	Training builds employees' green skills and competencies.	0.679				
GTD14	Online and digital tools are used for green training.	0.602				
GTD15	Job rotation includes green-related tasks.	0.604				
GTD16	Employees are supported in learning through green projects.	0.616				
GPM1	Green awareness is promoted at all levels.	0.750	GPM	0.929	0.929	0.501
GPM2	Employees have clear green goals and duties.	0.682				
GMP3	Managers include green goals in appraisals.	0.630				
GMP4	Green objectives are communicated clearly.	0.713				
GPM5	Green KPIs are part of performance reviews.	0.693				
GPM6	Green benchmarks are used for evaluating employees.	0.751				
GPM7	Employee performance includes green measures.	0.740				
GPM8	Green incidents are tracked and recorded.	0.718				
GPM9	Non-compliance with green goals is monitored	0.707				
GPM10	Green performance affects employee evaluation	0.704				
GPM11	Company supports achieving environmental goals	0.679				
GPM12	Consequences exist for not meeting green targets	0.697				
GPM13	Outstanding green performers are rewarded	0.730				
GCB1	Employees are paid for green achievements	0.750	GCB	0.917	0.917	0.481
GCB2	Compensation rewards environmental efforts	0.726				
GCB3	Green skills bring financial rewards.	0.719				
GCB4	Employees earn bonuses for green contributions.	0.716				
GCB5	Green practices at work earn recognition.	0.708				
GCB6	Incentives for completing green training.	0.699				
GCB7	Non-financial rewards are given for green efforts	0.693				
GCB8	Eco-friendly benefits like travel allowances offered	0.682				
GCB9	Tax or financial benefits for green participation	0.679				
GCB10	Appreciation programs recognize green employees	0.659				
GCB11	Green achievements are publicly appreciated	0.647				
GCB12	Company values employee sustainability efforts	0.635				
GI1	Company has a clear vision for environmental goals.	0.757	GI	0.763	0.762	0.457

GI2	Employees help solve environmental problems	0.617				
GI4	Company motivates staff for green actions	0.728				
GHS1	Company reduces stress through safe conditions.	0.761	GHS	0.786	0.788	0.481
GHS2	Safe and healthy work practices are maintained.	0.693				
GHS3	Health and safety benefits are provided.	0.670				
GHS4	Company follows eco-rules to reduce emissions.	0.646				
GEI1	Vision guides employees in environmental protection.	0.772	GEI	0.909	0.910	0.502
GEI2	Employees join problem-solving for green issues.	0.710				
GEI3	Learning culture supports sustainability.	0.742				
GEI4	Staff get chances to engage in green projects.	0.708				
GEI5	Green safety and sustainable practices are encouraged.	0.662				
GEI6	Employees are motivated to take green actions.	0.718				
GEI7	Communication promotes environmental values.	0.720				
GEI8	Employees share ideas on green skills	0.658				
GEI9	Feedback and training strengthen green practices	0.682				
GEI10	Green groups and newsletters encourage involvement.	0.705				
GLR1	Employees can give green suggestions	0.656	GLR	0.859	0.860	0.467
GLR2	Helplines exist for reporting environmental issues.	0.734				
GLR3	Unions get training on green management.	0.655				
GLR4	Joint sessions discuss environmental topics.	0.707				
GLR5	Sustainability gain-sharing programs are used.	0.660				
GLR6	Unions are part of environmental planning.	0.670				
GLR7	Unions join in green workplace agreements.	0.696				
GOC1	New processes help save energy	0.730	GOC	0.864	0.866	0.479
GOC2	Green efforts improve competitiveness.	0.702				
GOC3	Communication about green efforts is effective.	0.715				
GOC4	Green culture promotes sustainability.	0.745				
GOC5	Employees motivated to improve environmental results.	0.612				
GOC6	Management encourages green behaviours.	0.678				
GOC7	Green policies are regularly reviewed.	0.652				
GL1	Leaders respond to environmental issues.	0.713	GL	0.867	0.868	0.483
GL2	Leadership inspires eco-friendly actions.	0.717				
GL3	Green issues are part of decision-making.	0.681				
GL4	Leaders motivate green behaviour.	0.693				
GL5	Managers show commitment to the environment.	0.670				
GL6	Leadership supports CSR and green goals.	0.681				
GL7	Leaders communicate the importance of sustainability.	0.710				
***Source**: Source: Author's own compilation based on SPSS Output*						

5.4 Measurement model fit

The model fit indices indicate *(See table 4)* that the estimated model demonstrates an overall acceptable to good fit with the observed data. Specifically, the χ^2/df value of 2.427 falls well below the recommended threshold of 3, suggesting a good fit between the hypothesized model and the data (Kline, 2016). The RMSEA value of 0.095, though slightly higher than the ideal range of 0.05–0.08, remains within an acceptable limit of <0.10, indicating reasonable model approximation (Hair, 2009). The SRMR value of 0.057, along with TLI (0.905) and CFI (0.924), all exceed their respective recommended thresholds, further supporting the adequacy of the model fit (Hu & Bentler, 1999). The GFI value of 0.875, while slightly below the ideal cut-off of 0.90, may be considered marginally acceptable in the context of social science research (Hooper et al., 2008). Collectively, these indices provide sufficient evidence that the estimated model reliably represents the underlying data structure.

Table 4. Model fit

Fit Index	Estimated Model	Threshold	Interpretation
χ^2/df	2.427	< 3	Good fit
RMSEA	0.095	< 0.10	Acceptable
SRMR	0.057	< 0.08	Good fit
TLI	0.905	≥ 0.90	Good fit
CFI	0.924	≥ 0.90	Good fit
GFI	0.875	≥ 0.90	Marginal

***Source**: Source: Author's own compilation based on SPSS Output*

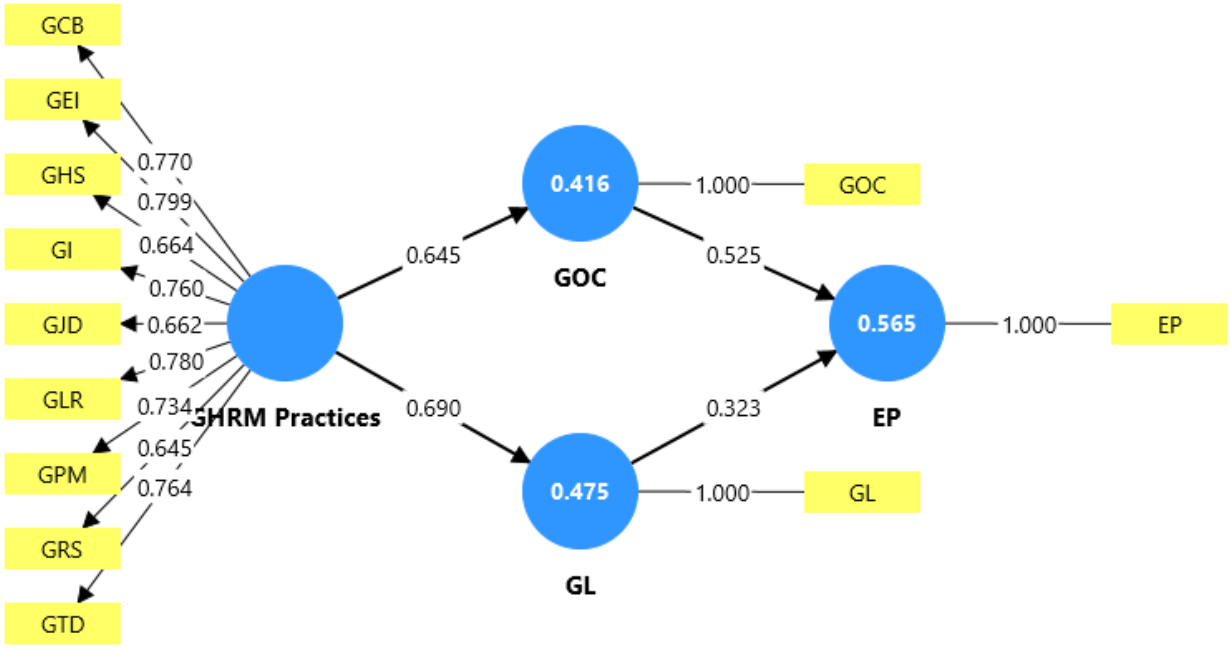

Figure 2 *Structural model*
(Source: SmartPLS output)

The structural model results (See table 5) indicate that all proposed hypotheses are statistically significant and supported. Specifically, H1 shows that Green Human Resource Management (GHRM) has a strong positive influence on Green Organizational Culture (GOC) with a path coefficient of 0.645 ($t = 10.078$, $p < 0.001$), confirming the hypothesized relationship. Similarly, H2 reveals a significant positive effect of GHRM on Green Leadership (GL), with a path coefficient of 0.690 ($t = 14.081$, $p < 0.001$). The influence of GOC on Employee Performance (EP) is also significant (H3; $\beta = 0.525$, $t = 8.898$, $p < 0.001$), and GL positively impacts EP as well (H4; $\beta = 0.323$, $t = 5.872$, $p < 0.001$). These findings collectively suggest that both GOC and GL mediate the relationship between GHRM and EP, highlighting the critical role of green management practices and leadership in enhancing employee outcomes (Hair, 2009; Kline, 2016; Mittal & Dhar, 2016).

Table 5. Hypothesized path

Hypothesis	Proposed Influence	Path Coefficient (β)	SD	t-value (β/STDEV)	P -values	Remarks
H1	GHRM -> GOC	0.645	0.064	10.078	0.000	Supported
H2	GHRM -> GL	0.690	0.049	14.081	0.000	Supported
H3	GOC -> EP	0.525	0.059	8.898	0.000	Supported
H4	GL -> EP	0.323	0.055	5.872	0.000	Supported

Source: Authors' own compilation based on SmartPLS output

All four assumptions are empirically supported by the data, which show that GHRM practices indirectly improve employee performance through the dual processes of green leadership and green corporate culture. In order to attain better results, this conclusion adds credence to the expanding body of research highlighting the strategic significance of integrating sustainability principles into HRM systems, leadership practices, and organizational culture. (Guerci et al., 2016; N. T. Pham et al., 2019).

6. DISCUSSION

The results of this study shed crucial light on the processes by which GHRM practices affect worker performance. The findings validate that GHRM has a beneficial influence on green leadership and green corporate culture, which is in line with previous studies (Al-Swidi et al., 2021; Renwick et al., 2013). This supports the claim that HRM practices not only mould workers' abilities and dispositions but also cultivate group values and leadership styles that put sustainability first (Dumont et al., 2017; Jackson et al., 2011).

The substantial impact that green organizational culture has on worker performance emphasizes how crucial shared values and sustainability-focused standards are to attaining better results. As suggested by Jabbour and Santos (Jabbour & Santos, 2008), a strong culture provides a context where eco-friendly practices become institutionalized, encouraging employees to internalize sustainability as part of their daily responsibilities. In turn, this culture fosters employee engagement, creativity, and performance improvement, aligning with the eco-citizenship perspective emphasized by (N. T. Pham et al., 2019).

Green leadership also emerged as a key predictor of employee performance, corroborating past research that highlights how leadership motivates staff and helps operationalize sustainability objectives (Chen & Chang, 2013; Mittal & Dhar, 2016). Leaders who demonstrate environmental responsibility set an example, motivate employees, and create pathways for innovation. This leadership dimension therefore acts as a catalyst for translating HRM policies into tangible employee outcomes (Robertson & Barling, 2013).

Together, the results advance theory by empirically validating the mechanism of mediating roles of organizational culture and leadership, addressing a gap in the literature where most prior studies assumed a direct relationship between GHRM and performance (El-Kassar & Singh, 2019; Luu, 2018). The study shows that without the support of a sustainability-oriented culture and leadership, GHRM practices may not fully convert into enhanced employee performance.

From a practical perspective, the outcomes advocate that organizations seeking to maximize the benefits of GHRM should invest in cultivating a green culture and developing leaders who embody sustainability values. This dual emphasis ensures that HR policies are reinforced at both cultural and behavioural levels, producing stronger and more sustainable employee performance outcomes.

7. IMPLICATIONS

The findings of this study offer several practical implications for managers, HR practitioners, and policymakers striving to align sustainability with organizational performance. The results highlight that the success of GHRM depends not only on implementing eco-friendly HR policies but also on fostering a supportive green culture and leadership. Organizations should integrate environmental objectives into HR functions such as recruitment, training, performance appraisal, and compensation to embed sustainability into employee roles and responsibilities. Developing green leadership competencies is equally vital, as leaders serve as role models who inspire, guide, and reinforce sustainable behaviours across teams. Furthermore, cultivating a green organizational culture that encourages shared values, innovation, and environmental accountability can strengthen the translation of HR practices into improved employee performance. HR departments should link appraisal and reward systems with environmental goals, recognizing employees who contribute to eco-innovation and conservation. Policymakers and industry bodies can further support these initiatives by promoting sustainability-oriented HR standards and leadership development programs that institutionalize green practices across organizations.

8. CONCLUSION

This study looked at how GHRM practices affected worker performance, using green leadership and organizational culture as mediating factors. The outcomes validate that GHRM directly enhances green culture and leadership, both of which significantly contribute to improved employee performance (Al-Swidi et al., 2021; Shahzad et al., 2023). These results add to the body of knowledge by demonstrating that there is a stronger correlation between GHRM and employee performance through leadership and cultural channels rather than just a direct one (Mittal & Dhar, 2016; Robertson & Barling, 2013).

Theoretically, the study contributes by bridging sustainable HRM and organizational behaviour literature, offering empirical evidence on the mediating mechanisms of culture and leadership (Pinzone et al., 2016; Schein, 2010). Practically, it emphasizes the necessity for organizations to integrate sustainability not only into HRM systems but also into their cultural fabric and leadership practices (Daily & Huang, 2001; Wehrmeyer, 2017). Doing so allows organizations to align employee behaviour with environmental goals, thereby achieving both ecological and performance-related outcomes (Lo et al., 2012; N. T. Pham et al., 2019).

Future studies could extend these findings by employing longitudinal designs to examine how GHRM initiatives advance over time and by testing the model across different sectors and cultural contexts. Such studies would enhance the generalizability of the results and provide further insights into how organizations can institutionalize sustainability through HRM, leadership, and culture (Ahmad, 2015).

9. LIMITATION AND FUTURE DIRECTIONS

Despite providing insightful information, this study has a number of drawbacks. GHRM practices, mediators, and employee performance cannot be causally inferred due to the cross-sectional design to begin with, longitudinal or experimental studies could provide stronger causal evidence (Al-Swidi et al., 2021). Second, the focus on employees from ISO 14001 certified organizations may restrict generalizability, replicating the study across diverse organizational contexts, including SMEs and non ISO 14001 certified companies, would enhance external validity (Nishii & Paluch, 2018). Finally, while green organizational culture and leadership were examined as mediators, other factors, such as green psychological climate, employee engagement, and organizational learning may also explain GHRM's impact on performance. To gain a deeper understanding of sustainability-driven HR practices, future research should broaden the model to incorporate these variables and investigate cross-cultural situations (Dumont et al., 2017; Norton et al., 2017).

REFERENCES

[1] Abbas, J., & Sau gsan, M. (2019). Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis. *J. Clean. Prod.*, *229*, 611–620. https://doi.org/https://doi.org/10.1016/j.jclepro.2019.05.024

[2] Ahmad, S. (2015). Green Human Resource Management: Policies and practices. *Cogent Bus. Manag.*, *2*(1), 1030817. https://doi.org/https://doi.org/10.1080/23311975.2015.1030817

[3] Al-Swidi, A. K., Gelaidan, H. M., & Saleh, R. M. (2021). The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance. *J. Clean. Prod.*, *316*(128112), 128112. https://doi.org/https://doi.org/10.1016/j.jclepro.2021.128112

[4] Aykan, E. (2017). *Gaining a competitive advantage through green human resource management. Corporate governance and strategic decision making*. 159–175. https://doi.org/10.5772/intechopen.69703

[5] Bin Amin, M., & Rabiul Basher Rubel, M. (2020). Human resource management practices and employee knowledge sharing behavior: Mediating role of knowledge sharing intention. *Asian J. Empir. Res.*, *10*(5), 150–164. https://doi.org/https://doi.org/10.18488/journal.1007/2020.10.5/1007.5.150.164

[6] Chen, Y.-S., & Chang, C.-H. (2013). The determinants of green product development performance: Green dynamic capabilities, green transformational leadership, and green creativity. *J. Bus. Ethics*, *116*(1), 107–119. https://doi.org/https://doi.org/10.1007/s10551-012-1452-x

[7] Chowdhury, S. R., Mendy, J., & Rahman, M. (2023). A systematic literature review of {GHRM}: Organizational sustainable performance reimagined using a new holistic framework. *Sustainability*, *15*(9), 7513. https://doi.org/https://doi.org/10.3390/su15097513

[8] Consoli, D., Marin, G., Marzucchi, A., & Vona, F. (2016). Do green jobs differ from non-green jobs in terms of skills and human capital? *Res. Policy*, *45*(5), 1046–1060. https://doi.org/https://doi.org/10.1016/j.respol.2016.02.007

[9] Daily, B. F., & Huang, S.-C. (2001). Achieving sustainability through attention to human resource factors in environmental management. *Int. J. Oper. Prod. Manage.*, *21*(12), 1539–1552. https://doi.org/https://doi.org/10.1108/01443570110410892

[10] DiStefano, C., Zhu, M., & M\^\indrilã, D. (2009). *Understanding and using factor scores: Considerations for the applied researcher*. University of Massachusetts Amherst. https://doi.org/https://doi.org/10.7275/da8t-4g52

[11] Dumont, J., Shen, J., & Deng, X. (2017). Effects of Green {HRM} Practices on Employee Workplace Green Behavior: The Role of Psychological Green Climate and Employee Green Values. *Hum. Resour. Manage.*, *56*(4), 613–627. https://doi.org/https://doi.org/10.1002/hrm.21792

[12] El-Kassar, A.-N., & Singh, S. K. (2019). Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and {HR} practices. *Technol. Forecast. Soc. Change*, *144*, 483–498. https://doi.org/10.1016/j.techfore.2017.12.016

[13] Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.*, *18*(1), 39–50. https://doi.org/https://doi.org/10.1177/002224378101800104

[14] Gawusu, S., Zhang, X., Jamatutu, S. A., Ahmed, A., Amadu, A. A., & Djam Miensah, E. (2022). The dynamics of green supply chain management within the framework of renewable energy. *Int. J. Energy Res.*, *46*(2), 684–711. https://doi.org/https://doi.org/10.1002/er.7278

[15] Guerci, M., Longoni, A., & Luzzini, D. (2016). Translating stakeholder pressures into environmental performance -- the mediating role of green {HRM} practices. *Int. J. Hum. Resour. Manag.*, *27*(2), 262–289. https://doi.org/https://doi.org/10.1080/09585192.2015.1065431

[16] Hair, J. F. (2009). *Multivariate data analysis*.

[17] Hooper, D., Coughlan, J., & Mullen, M. R. (2008). *Structural equation modelling: Guidelines for determining model fit*. https://doi.org/https://doi.org/10.21427/D7CF7R

[18] Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus

new alternatives. *Struct. Equ. Modeling*, *6*(1), 1–55. https://doi.org/https://doi.org/10.1080/10705519909540118
[19] Jabbour, C. J. C., & Santos, F. C. A. (2008). The central role of human resource management in the search for sustainable organizations. *Int. J. Hum. Resour. Manag.*, *19*(12), 2133–2154. https://doi.org/https://doi.org/10.1080/09585190802479389
[20] Jackson, S. E., Renwick, D. W. S., Jabbour, C. J. C., & Muller-Camen, M. (2011). State-of-the-art and future directions for Green human resource management: Introduction to the special issue. *Ger. J. Hum. Resour. Manag.*, *25*(2), 99–116. https://doi.org/https://doi.org/10.1177/239700221102500203
[21] Kim, Y. J., Kim, W. G., Choi, H.-M., & Phetvaroon, K. (2019). The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. *Int. J. Hosp. Manag.*, *76*, 83–93. https://doi.org/https://doi.org/10.1016/j.ijhm.2018.04.007
[22] Kline, R. B. (2016). *Principles and practice of structural equation modeling*. Guilford Press.
[23] Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Hum. Resour. Manag. Rev.*, *21*(3), 243–255. https://doi.org/https://doi.org/10.1016/j.hrmr.2010.07.001
[24] Lo, S. H., Peters, G.-J. Y., & Kok, G. (2012). A review of determinants of and interventions for proenvironmental behaviors in organizations. *J. Appl. Soc. Psychol.*, *42*(12), 2933–2967. https://doi.org/https://doi.org/10.1111/j.1559-1816.2012.00969.x
[25] Luu, T. T. (2018). Employees' green recovery performance: the roles of green {HR} practices and serving culture. *J. Sustain. Tour.*, 1–17. https://doi.org/https://doi.org/10.1080/09669582.2018.1443113
[26] Mittal, S., & Dhar, R. L. (2016). Effect of green transformational leadership on green creativity: A study of tourist hotels. *Tour. Manag.*, *57*, 118–127. https://doi.org/https://doi.org/10.1016/j.tourman.2016.05.007
[27] Moraes, S. de S., Chiappetta Jabbour, C. J., Battistelle, R. A. G., Rodrigues, J. M., Renwick, D. S. W., Foropon, C., & Roubaud, D. (2019). When knowledge management matters: interplay between green human resources and eco-efficiency in the financial service industry. *J. Knowl. Manag.*, *23*(9), 1691–1707. https://doi.org/10.1108/JKM-07-2018-0414
[28] Nassar, N., & Tvaronavičien.e, M. (2021). A systematic theoretical review on sustainable management for green competitiveness. *Insights into Regional Development*, *3*(2), 267–281. https://doi.org/https://doi.org/10.9770/ird.2021.3.2(7).
[29] Nishii, L. H., & Paluch, R. M. (2018). Leaders as {HR} sensegivers: Four {HR} implementation behaviors that create strong {HR} systems. *Hum. Resour. Manag. Rev.*, *28*(3), 319–323. https://doi.org/https://doi.org/10.1016/j.hrmr.2018.02.007
[30] Norton, T. A., Zacher, H., Parker, S. L., & Ashkanasy, N. M. (2017). Bridging the gap between green behavioral intentions and employee green behavior: The role of green psychological climate. *J. Organ. Behav.*, *38*(7), 996–1015. https://doi.org/https://doi.org/10.1002/job.2178
[31] Osolase, E. H. (2022). Explaining the concept of green human resource management practices through theoretical perspectives: {A-M-O} and stakeholder theories. *Academia Letters*. https://doi.org/https://doi.org/10.20935/al4616
[32] Paranagama, B. (2019). High performance work system and organizational commitment: A study of a large state sector organization in Sri Lanka. *Sri Lankan Journal of Human Resource Management*, *9*(2). https://doi.org/10.4038/sljhrm.v9i2.5654
[33] Pham, D. D. T., & Paillé, P. (2019). Green recruitment and selection: an insight into green patterns. *Int. J. Manpow.*, *41*(3), 258–272. https://doi.org/https://doi.org/10.1108/IJM-05-2018-0155
[34] Pham, N. T., Tučková, Z., & Chiappetta Jabbour, C. J. (2019). Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. *Tour. Manag.*, *72*, 386–399. https://doi.org/https://doi.org/10.1016/j.tourman.2018.12.008
[35] Pinzone, M., Guerci, M., Lettieri, E., & Redman, T. (2016). Progressing in the change journey towards sustainability in healthcare: the role of `Green' {HRM}. *J. Clean. Prod.*, *122*, 201–211. https://doi.org/https://doi.org/10.1016/j.jclepro.2016.02.031
[36] Renwick, D. W. S., Jabbour, C. J. C., Muller-Camen, M., Redman, T., & Wilkinson, A. (2016). Contemporary developments in Green (environmental) {HRM} scholarship. *Int. J. Hum. Resour. Manag.*, *27*(2), 114–128. https://doi.org/https://doi.org/10.1080/09585192.2015.1105844
[37] Renwick, D. W. S., Redman, T., & Maguire, S. (2013). Green Human Resource Management: A Review and Research Agenda. *INTERNATIONAL JOURNAL OF MANAGEMENT REVIEWS*, *15*(1), 1–14. https://doi.org/10.1111/j.1468-2370.2011.00328.x
[38] Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *J. Organ. Behav.*, *34*(2), 176–194. https://doi.org/https://doi.org/10.1002/job.1820
[39] Schein, E. H. (2010). *Organizational culture and leadership* (Vol. 2). John Wiley & Sons.
[40] Shafaei, A., Nejati, M., & Mohd Yusoff, Y. (2020). Green human resource management: A two-study investigation of antecedents and outcomes. *Int. J. Manpow.*, *41*(7), 1041–1060. https://doi.org/https://doi.org/10.1108/IJM-08-2019-0406
[41] Shah, M. (2019). Green human resource management: Development of a valid measurement scale. *Bus. Strat. Environ.*, *28*(5), 771–785. https://doi.org/https://doi.org/10.1002/bse.2279

[42] Shahzad, M. A., Du, J., & Junaid, M. (2023). Impact of green HRM practices on sustainable performance: mediating role of green innovation, green culture, and green employees' behavior. *ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH*, *30*(38), 88524–88547. https://doi.org/10.1007/s11356-023-28498-6

[43] Tang, G., Chen, Y., Jiang, Y., Paillé, P., & Jia, J. (2018). Green human resource management practices: scale development and validity. *Asia Pac. J. Hum. Resour.*, *56*(1), 31–55. https://doi.org/https://doi.org/10.1111/1744-7941.12147

[44] Unay-Gailhard, .Ilkay, & Bojnec, Š. (2019). The impact of green economy measures on rural employment: Green jobs in farms. *J. Clean. Prod.*, *208*, 541–551. https://doi.org/https://doi.org/10.1016/j.jclepro.2018.10.160

[45] Vidija, S. E., Obonyo, P. P. K., & Ogutu, P. M. (2016). Human resource management practices and performance of firms listed on the Nairobi Securities Exchange. *Journal of Human Resource and Leadership*, *1*(1), 1–24. https://doi.org/https://doi.org/10.47604/jhrl.88

[46] Wehrmeyer, W. (2017). *Greening people: Human resources and environmental management*. ROUTLEDGE, TAYLOR & FRANCIS.